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soon felt sick at the stomach, and after drinking some water vomited the whole poisonous meal, as his brother afterward stated. He become worse, lay down on the grass, and his sister was called, who twice gave him a small portion of milk, freshly drawn from pasture cows. But the third time the patient was no longer able to take the tin can used for milk-pan; unconsciousness and lockjaw had set in. He was carried home and died shortly after, although a physician was promptly called. The death occurred within seven hours after eating the plant.

The writer of this went some days afterward to the place and learned the facts as stated here, and identified the deadly poisonous plant as water-hemlock (*Cicuta maculata*, L.).

2. *Pastinaca sativa*, L., one of our most appreciated vegetables, has a bad record as "wild parsnip," growing frequently along ditches, roads, and hedges. In the year 1878, an employe of the Northern Wisconsin Railroad died from eating parsnips, rooted up by himself from a ditch. His wife, who refused the meal, preserved her life, but his two children and the hired girl could only be saved from death by a physician's aid. I was told of this by an acquaintance of the family, and it was also so stated by the newspapers. Two other fatal accidents, near Depere, Brown county, Wisconsin, were reported in the papers about two years ago, by which several persons lost their lives from eating wild parsnips. The matter is important, and serious enough to call especial attention to this plant and its effects.—J. H. SCHUETTE, *Green Bay, Wis.*

Galium verum in New York.—If Dr. Gray's mention, in the Manual, of Essex County, Massachusetts, as the only station of *Galium verum*, except its occasional occurrence among ballast plants, be not supplemented by later reports, it may be of some interest that the plant is well established here. Three years ago I found a single tuft on the farm of Mrs. Phœnix Bockée, near "The Separate," in the township of Stanford, Dutchess county, New York. Now, although limited to a single field, a pasture with thin limestone soil, it grows there in great masses of a rod or more in diameter, filling all the surrounding air with its heavy fragrance.—MARTHA BOCKÉE FLINT, *Amenia, N. Y.*

Littorella lacustris, L.—A new locality for *Littorella lacustris* is worth recording. Macoun's Catalogue gives three stations, one in Ontario, one in Nova Scotia, and one on Lake Champlain. I find it along the southern shore of Lake Utopia, Saint George, New Brunswick, where it flowers when the water is lowest, about the middle of August.—J. VROOM, *St. Stephen, N. B.*

EDITORIAL NOTES.

REV. E. L. GREENE has been appointed instructor in botany at the University of California.

A BOTANIC GARDEN has been established at Reikjavik, Iceland, which will undoubtedly introduce many valuable economic plants to the attention of the islanders.

PROF. JOHN M. COULTER has been appointed State Botanist of Indiana, a position with more of sound than substance, but looking towards better things.

DR. XAVER LANDERER, professor of botany at the University of Athens, Greece, died July 19.

M. E. JONES, of Salt Lake City, Utah, distributed lately a list of some 1,300 species of plants, collected by him during 1884, from Texas to California, which he has for sale.

A LARGE ILLUSTRATED WORK on the flora of France, by H. Baillon, is announced. It is to be issued in forty or fifty parts, with ten colored plates each. The price is moderate.

IN THE OCTOBER *Nuovo Giornale Botanico Italiano*, O. Mattirolo presents a paper on the development of the seed-coat in the genus Tilia, accompanied by three most excellent plates.

JOSEPH F. JAMES has a paper on "affinities of the genus *Dionœa* Ellis," and one on "progress of vegetation in the Ohio valley," in the Journal of the Cincinnati Soc. of Nat. Hist. for July.

WE LEARN FROM THE *West American Scientist* that the care of the Engelmann herbarium, which is to be deposited in the Shaw Botanic Gardens at St. Louis, has been offered to Dr. C. C. Parry.

THE AMERICAN NATURALIST for October contains a most excellent resumé, by Professer Bessey, of the botanical portion of the A. A. A. S. at Ann Arbor, and of the proceedings of the Botanical Club.

PROFESSOR TRELEASE has recently treated of the "spot disease of strawberry leaves (*Ramularia*)" and "when the leaves appear and fall," in the second report of the Wisconsin Agricultural Experiment Station, and of grape rot in the transactions of the Wisconsin Horticultural Society.

DR. C. ROUMEGUÈRE, editor in chief of the *Revue Mycologique*, has been made a commander of the Royal Military Order of Christ by His Majesty Don Louis I., King of Portugal. It is a great and unusual honor to be bestowed upon a botanist, and one who has devoted his whole life to science.

THE LAW OF MICHIGAN now requires two bulletins a year from each department of its Agricultural College. Several have already been issued, including one from the botanical department, on "vitality of seeds," and one from the horticultural department, on "fruits, vegetables and trees."

THE SYNOPSIS of the genus Selaginella, by J. G. Baker, is concluded in the October number of the *Journal of Botany*. It is accompanied by a complete, and hence invaluable index. This paper has extended over three volumes of the journal, and has described 312 species, 105 of which are described for the first time.

THE SEVENTH FASCICLE of a magnificent work on the forest flora of Cochin-China by L. Pierre, director of the botanic garden of Saïgon, has just been issued. The plates are 40x65 cm. and sometimes double. The work is published by the French government, under the auspices of the Minister of Marine and the Colonies.

PROF. EDOUARD REZEL, the director of the Imperial Botanic Garden at St. Petersburg, celebrated the 70th anniversary of his birth the 13th of last August. A great number of his friends and collaborators joined in celebrating the day.

THAT THE MICROPHYTES have wonderful powers of resistance is shown by the recent experiments of Professor McKendrick, of Glasgow. Attempts were made to destroy organisms like bacteria by cold, instead of heat. Temperatures of 120° below 0° F. were applied, but when thawed the fluids contained living organisms still.

F. C. LEHMANN, who has spent over ten years in tropical America, has returned to his labors, after a short visit to Europe to arrange for the elaboration and publication of the results of his extensive collecting. He will make his headquarters at Popayan, United States of Colombia, and especially investigate the conditions of plant distribution.

THAT WE NEED some popularized information on the subject of parasitic fungi is shown by a recent editorial note in a leading horticultural paper which says, in reference to the new work entered upon by the Agricultural Department, that, " Prof. Trelease has been engaged to work up the diseases of plants, and Mr. Scribner to work up the microscopic plants.

AN EAR OF RICE pop-corn, sent to the New York Agricultural Experiment Station, as a new variety, under the name of Bear's Paw, was peculiar in being flattened in a fasciated manner. Four hills were planted and thirteen ears grown, of which twelve showed fasciation like the original. It is, to all appearances, the transmission of a malformation.

THE CULTIVATION of barley in Iceland, which was discontinued about the middle of the fifteenth century, has been resumed under the auspices of the government, and with full success. The reason it has not been carried on in recent years is evidently not due to the increased cold of northern regions, as usually maintained, but to the fact that cattle raising was more profitable.

HACKEL, in his monograph of the European species of Festuca, maintains that the histological characters of the leaf are of great diagnostic value, even for closely related varieties and forms. Of the various tissues the sclerenchyma offers the best characters, and the epidermis comes next, while the mesophyll and fibro-vascular bundles are quite uniform and worthless for this purpose.

DR. G. L. GOODALE returned on the 26th of September from a brief stay in Germany, whither he sailed about the first of August. He went chiefly for recreation, but visited a few of the chief laboratories. A conference with Mr. Carl Zeiss will result in the production of a cheaper and more convenient dissecting microscope, a large number of which have already been ordered for the botanical laboratory at Cambridge.

PROFESSOR D. P. PENHALLOW has treated of the distribution of the reserve material of plants in relation to disease in the *Canadian Record of Science* for October. He uses the peach tree as an illustration, and shows, *inter alia*, that a relation exists between the amount of starch deposited in the bark and the quantity of potash in the ash. An unhealthy tree, presumably suffering from the yellows, has more starch and less potash.

THE LABORATORY NUMBER (December) of the GAZETTE is meeting with much encouragement from our principal laboratories and many private workers. We would ask every worker, whether in a laboratory or not, to send to us descriptions of any devices, simple or otherwise, he may value in his work. All kinds of suggestions are desired, such as any botanist would like to obtain from his fellows. We do not desire to omit any laboratory, public or private, and if this is done, the failure must not be laid to our charge.

IN THE *American Naturalist* for November, L. P. Gratacap gives the results of some experiments upon the growth of plants watered with acid solutions. Without giving any of the many interesting details of the work, the general conclusion reached is that "the action of acid upon soil containing growing plants is to increase the mineral constituents of the latter, and that slightly acid waters percolating through a pulverulent soil richly provided with comminuted and impalpable matter would assist its introduction into plants needing these elements.

ON THE 18th of this month Dr. Asa Gray completes three-quarters of a century of his life. Few botanists can show so many years of botanical activity, and certainly none have been of such uninterrupted and illustrious service in the cause of botanical science in this country. His career, reaching back into the very beginnings of American botany, is still at the very zenith of its usefulness. The grip upon North American plants, which only many active years can bring, renders his recent work and the work yet planned of very great importance, and American botanists are very earnest in their hope that many years may yet elapse before his busy brain and pen cease to work for us.

WE WOULD CALL the attention of our readers to the fact that the General Index for the first decade of the GAZETTE is being prepared, and will be a most exhaustive one. Every species mentioned, every subject (not only formal ones, but also those incidentally referred to), every author, all with abundant cross references, will be given. It is the intention, in short, to place in the hands of botanists an index which will put at their finger tips all the information which the BOTANICAL GAZETTE has contributed for ten years. This index will only be sent free to subscribers to Volume XI, and as only a limited edition will be printed, it is necessary for subscribers to be prompt in sending their names. For particulars our advertisement on the second page of the cover may be consulted.

MR. HEMSLEY'S report on the insular floras collected by the Challenger Expedition is one of great interest, for the questions suggested by insular floras are often very puzzling. It is upon these islands, too, that the native flora is being sadly interfered with, and where it is very peculiar, as in the case of St. Helena, a complete knowledge of it can not be obtained too soon. In fact, four recorded and peculiar species have already entirely disappeared from the island mentioned, and others are rapidly approaching extinction. St. Helena and the Bermudas are taken as presenting the two types of insular floras; the former very ancient and very distinct, and its origin very uncertain ; the latter entirely resembling that of neighboring islands and continents. It is stated that not even a well marked species would be lost if the Bermudas were submerged.

MR. G. MURRAY, in his annual reports as Inspector of Fisheries in England and Wales, gives some interesting accounts of the inoculation of fishes with *Saprolegnia ferax.* The cultivation of this fungus was carried on with flies as hosts, and inoculations were effected by rubbing the head or sides of the fish with an infected fly. Experiments were mostly made upon species of the Salmonidæ. Some experiments were very successful, others not at all so; in the former cases the fungus appearing and death following promptly. In one case, where the disease broke out in a fish tank, it was found that oospores of Saprolegnia had been conveyed to the fishes by the earth-worms used as food, and that the worms had obtained them from moist ground upon which had been thrown the bodies of diseased fishes. Afterwards another fungus, *Dictyuchus,* appeared in the cultivations and entirely displaced *Saprolegnia,* the latter rapidly and completely disappearing.

MUSHROOMS are coming to the front, and information concerning them may soon be broadcast enough in this country to bring within the reach of our people a very palatable, cheap, and abundant food. Dr. Rothrock has recently lectured upon this subject, in the Fairmount Park series of lectures. After describing a number of nutritious and dangerous fungi, the lecturer said : "There is a point to be insisted upon, that as fungi, which were edible and delicious and nutritious, are probably more abundant here than in Europe, where they are an important article of food, it is in the interest of the community that every one should know them. Every public school should have, where every child could see them, plaster models, life size and color, of the edible and the poisonous species. This idea could easily be realized, and would involve almost no expense, whilst its practical benefits would be larger than we can at present conceive of. Even the Chinese government prints and distributes broadcast over the land what is known as the Anti-Famine Herbal, a book describing nearly 500 species of plants which in time of scarcity may be utilized as food. Are we still to remain in this respect below these, whom we consider barbarians?"

A RECENT PAPER[1] by M. Leclerc du Sablon on the dissemination of the spores of vascular cryptogams may be briefly summarized as follows: The structure of the sporangium is quite similar in plants of the same family. In Equisetaceæ the sporangium presents the same structure as in a large number of Phanerogams (e. g. Borrago, Iris). It is composed of "spiral" cells, and it is to the difference between the contraction of the pure cellulose of the wall and the lignified cellulose of the spiral that the rupture is due. The movements of the spores after they are set free are due to the difference in the contraction of the lignified and non-lignified parts of their appendages. The dehiscence of the sporangium is explicable on the same principle, but is made possible by a different arrangement of the lignified parts. Here the external walls of the epidermal cells are composed of pure cellulose, while the internal and lateral walls are lignified; the external face of the cells, therefore, will contract more. The dehiscence of the sporangium of Ferns is characteristic and and unique. The different movements effected by the cells are due to the variation in pressure produced by the dryness of the air in the interior of the cells. The opening of the sporangium is therefore not due to the contraction proper of the cell-walls. In all three groups of vascular cryptogams the determining cause of the rupture is the same, viz: the dryness of the atmosphere.

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[1] Ann. des Sc. Nat. Sér. 7, tome ii, p. 5. July, 1885.

In *Flora* for September 1st, J. Schrodt commences a paper on a similar subject, "Das Farnsporangium und die Anthere; Untersuchungen über die Ursachen des Oeffnens und Umrollens derselben."

PROF. WILLIAM TRELEASE has published, with plate, a resumé of his observations on several Zoogloeæ and related forms in the Johns Hopkins series of Biological Studies. The following note as to his method of culture is interesting to workers: "At first various starchy substances were employed as media for the growth of the different species, but I finally restricted my cultures to boiled potatoes carefully cut in halves, the exposed face being inoculated in one or more points by means of a needle scrupulously fired before and after each inoculation. These were kept in sauce-plates, under inverted tumblers, some of which were not disturbed until the end of the culture, while others were opened from time to time for microscopical study or for material to be used in starting new cultures. It is needless to say that many of these failed through the introduction of other germs in one way or another; but by means of frequent transfers, pure cultures of all ages were kept under daily observation for about three months:"

CURRENT LITERATURE.

Parasitic Fungi in Illinois: Part I, Uredineæ. From the Bulletin of the Illinois State Laboratory of Natural History, vol. II, pp. 139-255. By T. J. Burrill, Ph. D. Peoria, 1885.

The first striking feature of this work is its size, for although embracing but a single order as illustrated in one State only, it requires, exclusive of the preface, over one hundred and fifty octavo pages for the enumeration. Eighty-two true species and forty-seven imperfect forms are described. The recent catalogue of the parasitic fungi of Wisconsin gives sixty-five true species and thirty-four imperfect forms of Uredineæ, and that of Iowa gives seventy-nine true species and fifty-five imperfect forms. It is plain that the parasitic fungi are receiving marked attention, and the rusts in particular. Much credit for the size of the Illinois list is due Professor A. B. Seymour, now of the University of Wisconsin, who collected two seasons under the direction of the State Laboratory, and who has remarkably keen powers of observation.

Each species of the list is amply described, the localities for each host plant cited, some synonymy given and notes often appended. The whole is preceded by a key to the genera and followed by a glossary and index of species and host plants. The work throughout shows evidence of thorough and critical study, and is a very valuable contribution to American mycology. The labor on the synonymy is especially commendable. The author is cautious